Il: India G-4, 5 (1960-1961) 1962 AWll Kerala AWll

6.10 The present method of working these sands is haphazard and extremely short-sighted. The dunes are getting exhausted while the washings are dependent on a good monsoon. A better method would be to work the sand bar itself. This would also be in the interests of (*i*) conservation and (*ii*) ensuring a regular supply of raw sand independent of the vagaries of nature. Even if working of the sand bar suggested above is not taken up now, back filling of pools with sand tailings from mineral sand companies would prove beneficial. It would lead to building up of sand rich in heavy minerals, other than ilmenite. At present the tailings which contain 80 per cent of the original rutile and all the sillimanite and zircon, are dumped into the sea.

6.11 The extraction of ilmenite is done by the mineral sand companies at Chavara. Till recently there were four units, namely, two units belonging to the Travancore Minerals, one to F.X. Pereira Minerals and one to Hopkins and Williams. These concerns were all under private ownership till 1945. Realizing the strategic importance of these sands, the Travancore State assumed control of the sand deposits during that year ; and the mineral concerns continued to work as agents on behalf of the State. A few years later, however, the Travancore Minerals (1951) and F.X. Pereira Minerals (1956) were taken over by the State Government and run directly as State enterprises.

6.12 Hopkins and Williams, however, continued in private hands till 1959. By this time some difficulties cropped up with labour. The firm had also accumulated vast arrears of royalty to the tune of Rs. 28 lakhs. At this stage the management decided to close down the unit. In the interim period their export contracts had also lapsed. As a result of all these developments, there are two mineral concerns at present operating three units, whose total capacity is 1,60,000 tons. In view of the reduced foreign demand for Indian ilmenite, closure of Hopkins and Williams has not created any serious problem.

6.13 The output per man per shift works out to 0.41 ton at the Travancore Minerals Plant and 0.40 ton in the F.X. Pereira unit ; whereas in the Hopkins and and Williams plant, now closed, the output per man per shift was around one ton. This was partly due to a better layout of the machine. In the existing plants much effort and material is lost in transportation from one unit to another. In addition, excessive labour appears to be employed in the plant of the Travancore Minerals (P) Ltd.

6.14 The production of ilmenite rose from 216,000 tons in 1950, to a peak of 314,000 tons in 1956. Since then it has been fairly steady between 270,000 and 290,000 tons. The value has also been going up from Rs. 33 lakhs in 1950 to Rs. 170 lakhs in 1959. The present price is Rs. 60 per ton.

6.15 Ilmenite is mainly used in the manufacture of TiO_2 (titanium) white pigment. TiO_2 is used in various other industries like paper, delustrant in rayons, rubber compositions, plastics, printing inks, cosmetics, etc. Titanium metal is not widely used mainly because of its high cost of production.

6.16 Only a very small portion of the production of ilmenite is consumed within the State in the manufacture of TiO_2. The Travancore Titanium Products Ltd., Trivandrum, utilize about 3,000 tons of this mineral. This plant is expanding its capacity to 10 tons a day by 1961, and will then require 6,000 tons of ilmenite. The

rest of the production is exported to various countries, the bulk of it going to the USA and the UK. Export figures are given in Table 29 for the period 1956–59.

6.17 Irregular supplies made through the Koilthottam port, mainly due to labour difficulties, have resulted in the loss of contracts with importers in the USA. Export possibilities of ilmenite are now limited only to two contracts to UK totalling 1,50,000 tons per year. This setback has occurred in spite of the fact that the Chavara ilmenite has a high TiO_2 content (55-60%) and is cheaper when compared to Malayan ilmenite (about 45% TiO_2) which, however, finds a ready export market.

6.18 India, which at one time used to hold almost a monopolistic position in the export of ilmenite has now to face competition. Side by side with the expansion of titanium industry, other world sources for supply of ilmenite have come into operation as in Norway, Canada, Malaya, Australia, South Africa, etc. Whereas in 1940 India used to contribute 90 per cent to world production of ilmenite, now its share is only 25 per cent.

6.19 In view of the rapid expansion of India's steel industry, the consumption of TiO_2 pigment is itself expected to go up. The total requirements of ilmenite by 1965-66 would be 150,000 tons a year for export and 36,000 tons a year for the manufacture of TiO_2 pigment, on the basis of proposal for expansion of Titanium Dioxide plant at Trivandrum incorporated in this report. Table 30 gives demand for Titanium Dioxide pigment from steel industry and various other sources. The two existing companies can produce about 160,000 tons a year. Extra capacity of 30,000 tons a year will have to be installed, and this along with certain improvements suggested earlier may require an investment of Rs. 20 lakhs. Very little increase in labour force is envisaged. The existing labour force itself appears to be excessive, since the output per man per shift works out to a low level of 0.4 tons.

6.20 During the Fourth Plan period, steel production is expected to double itself. Therefore, by 1970-71, the demand for Titanium Dioxide may also be expected to be roughly double of the demand in 1965-66. This would necessitate another 30,000 tons of ilmenite per annum. Total requirement of ilmenite by 1970-71 would thus be 220,000 tons a year, comprising of 150,000 tons for export and 60,000 tons for the manufacture of Titanium Dioxide. This would involve further additional outlay of Rs. 10 lakhs. Even this order of expansion can be achieved with the existing labour at an output of one ton per man per shift which would measure a fairly reasonable level of productivity.

Monazite

6.21 Monazite is a phosphate of thorium and cerium with rare earth elements and small quantities of Uranium Oxide. It constitutes a source of the radio-active element, thorium being used for atomic energy purposes. Monazite was first discovered in India, by C.W. Von Sohomberg, a German citizen, in 1909 along the beach at Manavalakkurichi.

6.22 Monazite occurs along with other heavy minerals in the beach sands. Reserves of the order of 6.7 million tons are estimated to be present in the bar between Neendakara and Kayarkulam. There is, however, no production of monazite

[Table 30, appearing on p. 290 of the text, has not been processed -- Analyst]

13:Thurston & Rangachari E-4, 5 (no date) 1909
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Nayar

Then the Karanavan, or the father, ceremoniously approaches, and sits down facing the child. First he puts in the mouth of the child a mixture of the tamarind, chillies and salt, then some rice, and lastly a little sugar. Thenceforward the ordinary food of the child is rice. It is usual on this occasion for relatives (and especially the bandhus, such as the ammayi, or 'uncle's wife') to adorn the child with gold bangles, rings and other ornaments. The rice-giving ceremony is, in some cases, preferably performed at some famous temple, that at Guruvayūr being a favourite one for this purpose." It is noted by Mr. N. Subramani Aiyar that the rice-giving ceremony is usually performed by taking the child to a neighbouring temple, and feeding it with the meal offered to the deity as nivadiyam. In some places, the child is named on the chorūn day.

Of ceremonies which take place in infancy and childhood, the following account is given in the Gazetteer of Malabar. "On the fifth day after birth, a woman of the Attikurissi or Mārayan caste among Nāyars, or of the barber caste in the lower classes, is called in, and purifies the mother, the other women of the household, and the room in which the child was born, by lustration with milk and gingelly oil, using karuga (*Cynodon Dactylon*) as a sprinkler. Her perquisites are the usual niracchaveppu (1 edangazhi of paddy and 1 nazhi of uncooked rice) placed together with a lamp of five wicks in the room to be cleansed, and a small sum in cash. A similar purification ceremony on the 15th day concludes the pollution period. In some cases, milk and cow's urine are sprinkled over the woman, and, after she has bathed, the Mārayan or Attikurissi waves over her and the child two vessels, one containing water stained red with turmeric and lime, and one water blackened with powdered charcoal.